IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Hayashi

Serial No.: 10/786,865 **Group Art Unit:** 2838

Filed: February 24, 2004 **Examiner:** Boateng

For: AC ADAPTOR

APPEAL BRIEF UNDER 37 C.F.R. §41.37

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Applicant now submits this Appeal Brief in support of the Notice of Appeal filed May 14, 2008. The Commissioner is authorized to charge the requisite fee under §41.20(b)(2) in the amount of $510.00, and any additional fees necessitated by this Brief to deposit account no. 13-4500 (Order No. 1232-5307).

The Applicant respectfully requests that this Brief be fully considered by the Board and that the rejection of the claims be reversed for the reasons stated herein.

I. REAL PARTY IN INTEREST

The real party in interest is Canon Kabushiki Kaisha, the assignee of this application.

II. RELATED APPEALS AND INTERFERENCES

The Applicant is unaware of any related appeals and/or interferences.

III. STATUS OF CLAIMS

Claims 1-16 were originally presented. Claims 1 and 6 had been previously canceled, and claim 17 had previously been added. Claims 2-5 and 7-17 are pending in this application with claims 2-5 and 7-16 having been withdrawn from consideration by an election pursuant to an imposed election/restriction requirement. Claim 17 is thus under examination and stands rejected. The rejection of this claim is hereby appealed. A complete copy of the claims involved in the appeal, i.e., claim 17 (as amended during the course of examination of this application and as finally rejected) is attached hereto.

IV. STATUS OF AMENDMENTS

In response to a first Office Action dated July 6, 2006, which was subsequent to an Election/Restriction Requirement dated March 9, 2006, an Amendment was filed on October 6, 2006 and entered. Responsive to a Final Rejection dated February 7, 2007, an Amendment was filed on May 4, 2007 along with a Request for Continued Examination. The Amendment was entered.

In response to an Office Action dated August 2, 2007, a Request for Reconsideration was filed on December 3, 2007 along with a petition for a one month extension of time.

In response to a Final Rejection dated February 14, 2008, a Notice of Appeal was filed May 14, 2008. The corresponding Appeal Brief is submitted herewith. No Amendments were filed after the Final Rejection dated February 14, 2008. Thus all filed Amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is, in various aspects, directed towards an AC adaptor capable of achieving downsizing and cost reduction, and having both a constant-voltage/constant-current control function necessary for battery charge, and an optimum current control function for driving of a low-power-consumption electronic apparatus. This AC adaptor includes, for example, a first constant-current control device which performs first constant-current control for charging a battery, a second constant-current control device which performs second constant-current control for supplying an electric current necessary to drive an electronic apparatus, and a voltage detecting device which detects the voltage drop of a DC output. If, for instance, the output voltage becomes lower than a preset value, the second constant-current control for supplying the electric current necessary to drive the electronic apparatus is performed. Since, for example, this obviates the need for a large-capacity element which permits high power, it is possible, for instance, to decrease the outer dimensions, and also decrease the power ratings of electronic parts.

The claim involved in the appeal is independent claim 17.

Claim 17 is generally directed to a "power supply device having a DC output unit which performs outputting under constant-voltage/constant-current control" (see, for example, Specification p. 12 ln. 14-22, p. 13 ln. 16-24, and p. 17 ln. 5-14, and Fig. 1 reference numerals 1 and 10).

Claim 17 sets forth "a constant-current control device which performs a first constant-current control operation for maintaining a first current value and a second constant-current control operation for maintaining a second current value which is larger than the first

current value" (see, for example, Specification p. 13 ln. 16 - p. 14 ln. 4, p. 14 ln. 12-21, p. 15 ln. 22 - p. 16 ln. 5, p. 16 ln. 15-25, and p. 21 ln. 12 - p. 22 ln. 4, and Fig. 3 points "E" and "F").

Claim 17 further sets forth "a voltage detecting device which detects a voltage drop of the DC output which is caused by a rush current" (see, for example, Specification p. 13 ln. 25 - p. 14 ln. 11 and p. 17 ln. 5-14, and Fig. 1 reference numeral 12).

Claim 17 additionally sets forth "a temperature detecting device which detects a temperature of the power supply device" (see, for example, Specification p. 17 ln. 24 - p. 18 ln. 10 and Fig. 4 reference numeral 25).

Claim 17 also sets forth "a switching device which switches a constant-current control operation from the first constant-current control operation to the second constant-current control operation when said voltage detecting device detects a voltage drop of the DC output while said constant-current control device performs the first constant-current control operation, and switches a constant-current control operation from the second constant-current control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature while said constant-current control device performs the second constant-current control operation" (see, for example, Specification p. 14 ln. 4-11 and p. 17 ln. 24 - p. 18 ln. 10, and Fig. 4 reference numerals 21 and 26).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issue on appeal is whether claim 17 would have been obvious under 35 U.S.C. 103(a) as being unpatentable over Nishida (U.S. Patent Application Publication No. 2004/0090209) in view of Trembley (U.S. Patent Application Publication No. 2004/0036445). Claim 17 is independent.

VII. ARGUMENT

Claim 17 is Not Obvious Over Nishida in View of Trembley

Subsequent to an Election/Restriction Requirement dated March 9, 2006, a first Office Action dated July 6, 2006, and the Applicant's responses thereto, a Final Rejection dated February 7, 2007 was issued.

The Final Rejection rejected claim 17 under 35 U.S.C. 103(a) as being unpatentable over Nishida in view of Trembley. The Office Action indicated that Nishida disclosed claim 17 except for "switch[ing] a constant-current control operation from the second constant-current control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature while said constant-current control device performs the second constant-current control operation." The Office Action contended that it "would have been obvious to a person of ordinary skill in the art to modify the Nishida system with the Trembley system" to provide such, the Office Action indicating that one would have been motivated to so modify Nishida so that "proper charging is insured and the battery does not become damaged."

In response, the Applicant filed an Amendment After Final on May 4, 2007 in which claim 17 was amended to its present form.

In conjunction with the presented amendment, the Applicant noted that claim 17 sets forth, for example, a voltage detecting device which "detects a voltage drop of the DC output which is caused by a rush current," and a switching device which "switches a constant-current control operation from the first constant-current control operation to the second constant-current control operation when said voltage detecting device detects a voltage drop of the DC output" and "switches a constant-current control operation from the second constant-current

control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature."

The Applicant pointed out that Nishida merely discusses a voltage value of the constant voltage control being changed on the basis of a voltage value of the battery which is charged, with Nishida merely discussing that the constant-voltage circuit 4 generates and outputs the constant-voltages E1-E3 each of which has a different voltage value, that the voltage switch circuit 22 selects one of the constant-voltages E1-E3, and that the charge control circuit 6 outputs the voltage switch signal Ss and switches the constant-voltages E1-E3 on the basis of the battery voltage Vb of the lithium ion battery 11 which is detected by the battery voltage detection circuit 3. Also, the Applicant observed that in claim 17 both of subject to be changed and condition in which the operation is changed differ from Nishida.

The Applicant additionally observed that Trembley merely discusses that the battery charger 404 has a microcontroller 406, that the microcontroller 406 can obtain a temperature of the battery 402a by the temperature sensing line 414b, and that the microcontroller 406 performs the charge control on the basis of the temperature and the voltage value of the battery 402a, and that in claim 17 both of subject to be changed and condition in which the operation is changed differ from Trembley.

Responsive to the Amendment After Final filed May 4, 2007, an Office Action dated August 2, 2007 was issued. The Office Action maintained the position that Nishida and Trembley, in combination, provided all aspects of claim 17, the Office Action contending that the amended aspect of "which is caused by a rush current" was disclosed among paragraphs [0010] and [0011] of Nishida, the Office Action stating that "Nishida discloses in paragraphs

[0010] and [0011] wherein the charging current is monitored and causes a voltage drop, which is detected by the voltage detecting device." Additionally, the Office Action characterized paragraph [0031] of Trembley as disclosing "wherein the constant current operation switched based off of temperature readings."

In response, the Applicant filed a Request for Reconsideration on December 3, 2007.

The Applicant pointed out that paragraphs [0010] and [0011] of Nishida merely discuss the operation of the constant-voltage circuit 118 being stopped when the charge current detection-circuit 122 detects that the charge current drops under a predetermined value. The Applicant also pointed out that, on one hand claim 17 sets forth "detect[ing] a voltage drop of the DC output which is caused by a rush current," while on the other hand, the drop of the charge current is detected in Nishida.

The Applicant noted that, on one hand claim 17 sets forth "switch[ing] a constant-current control operation from the first constant-current control operation to the second constant-current control operation" wherein the "first constant-current control operation [maintains] a first current value" and the "second constant-current control operation [maintains] a second current value which is larger than the first current value" (emphasis added), while on the other hand, the operation of the constant-voltage circuit 118 is stopped in Nishida.

The Applicant observed that, accordingly, the subjects to be detected and the operations are entirely different between claim 17 and Nishida. Also, the Applicant pointed it out to be believed clear that the current value of the constant-current control being raised by detecting the voltage drop caused by the rush current is entirely different from the constant-voltage charging operation being stopped by detecting the drop of the charge current.

The Applicant observed that paragraph [0054] of Nishida merely discusses the charge control circuit 6 changing the constant-voltages E1-E3 in accordance with the battery voltage Vb of the lithium ion battery 11 which is detected by the battery voltage detection circuit 3. Also, the Applicant pointed out that, on one hand, claim 17 sets forth "detect[ing] a voltage drop of the DC output which is caused by a rush current," while on the other hand, the battery voltage Vb of the lithium ion battery is detected in Nishida.

The Applicant further noted that, on one hand claim 17 sets forth "switch[ing] a constant-current control operation from the first constant-current control operation to the second constant-current control operation" wherein the "first constant-current control operation [maintains] a first current value" and the "second constant-current control operation [maintains] a second current value which is larger than the first current value" (emphasis added), while on the other hand, the constant-voltages E1-E3 are changed in Nishida.

The Applicant pointed out that, accordingly the subjects to be detected and the operations are entirely different between claim 17 and Nishida. Also, the Applicant noted it to be believed clear that the current value of the constant-current control being raised by detecting the voltage drop caused by the rush current is entirely different from the constant-voltage sources being changed by detecting the voltage of the battery.

The Applicant observed that paragraph [0031] of Trembley merely discusses the charge operation being performed only when the temperature of the battery 402a is within a predetermined range. The Applicant pointed out that on one hand claim 17 sets forth "switch[ing] a constant-current control operation from the second constant-current control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature,"

while on the other hand, Trembley merely discusses the charge operation being performed only when the temperature of the battery 402a is within a predetermined range.

In response to the Request for Reconsideration, a Final Rejection dated February 14, 2008 was issued. The Final Rejection, in relevant part, argued that "Nishida discloses in paragraphs [0010] - [0011] wherein the charging current causes the voltage to drop over the resistor, then that resulting voltage is applied to the charge detecting circuit" and that "[t]he charge detection voltage detects the input voltage which is, in essence, a voltage detecting device since it detects voltage and detects the voltage drop."

The Final Rejection, in further relevant part, argued that "Nishida discloses in paragraph [0031] wherein the when the battery voltage of the output level is below a certain level, a first constant current is output, then when it is equal to or greater than a predetermined level, a second constant current is output which is larger than first output."

In response, the Applicant filed a Notice of Appeal on May 14, 2008.

Thus, in one aspect, the Office Actions, in sum, contend that Nishida and Trembley, in combination, provide:

> "... a constant-current control device which performs a first constant-current control operation for maintaining a first current value and a second constant-current control operation for maintaining a second current value which is larger than the first current value;
>
> a voltage detecting device which detects a voltage drop of the DC output which is caused by a rush current; [and]
>
> ... a switching device which switches a constant-current control operation from the first constant-current control operation to the second constant-current control operation when said voltage detecting device detects a voltage drop of the DC output while said constant-current control device performs the first constant-current control operation, and switches a constant-current control operation from the

> second constant-current control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature while said constant-current control device performs the second constant-current control operation"

as set forth in claim 17 (emphasis added).

As previously discussed, the Applicant respectfully disagrees.

Nishida merely discusses that the constant-voltage circuit 4 generates and outputs the constant-voltages E1-E3 each of which has a different voltage value, that the voltage switch circuit 22 selects one of the constant-voltages E1-E3, and that the charge control circuit 6 outputs the voltage switch signal Ss and switches the constant-voltages E1-E3 on the basis of the battery voltage Vb of the lithium ion battery 11 which is detected by the battery voltage detection circuit 3.

As indicated above, in Nishida the charge control circuit 6 merely outputs the voltage switch signal Ss and switches the constant-voltages E1-E3 on the basis of the battery voltage Vb.

As previously referenced by the Applicant, paragraphs [0010] and [0011] of Nishida merely discuss the operation of the constant-voltage circuit 118 being stopped when the charge current detection-circuit 122 detects that the charge current drops under a predetermined value, with Nishida merely converting the charge current value to a voltage value by resistance R1, but not detecting the voltage drop of the DC output.

Instead, for instance, of so detecting the voltage drop of the DC output, Nishida, as a charge operation of a lithium-ion battery is stopped by detecting a drop of a charge current when the battery is charged up to a predetermined voltage, merely discusses that the charge current is detected by converting the charge current to a voltage value by resistance R1 (see

Nishida paragraph [0011]). Further, paragraph [0031] of Nishida merely discusses that that a charge completion signal is output when a current value output from a constant voltage circuit becomes a predetermined value, and an operation of the constant voltage circuit is stopped when the charge completion signal is input.

As previously discussed by the Applicant, on one hand, for example, claim 17 sets forth "detect[ing] a voltage drop of the DC output which is caused by a rush current," while on the other hand, the drop of the charge current is detected in Nishida. Further, as previously noted on one hand, for example, claim 17 sets forth "switch[ing] a constant-current control operation from the first constant-current control operation to the second constant-current control operation" wherein the "first constant-current control operation [maintains] a first current value" and the "second constant-current control operation [maintains] a second current value which is larger than the first current value" (emphasis added), while on the other hand, the operation of the constant-voltage circuit 118 is stopped in Nishida. Accordingly, for instance, as previously indicated the subjects to be detected and the operations are entirely different between claim 17 and Nishida, the Applicant believing it clear, for example, that the current value of the constant-current control being raised by detecting the voltage drop caused by the rush current is entirely different from the constant-voltage charging operation being stopped by detecting the drop of the charge current.

In further contrast, for instance, as previously noted paragraph [0054] of Nishida merely discusses the charge control circuit 6 changing the constant-voltages E1-E3 in accordance with the battery voltage Vb of the lithium ion battery 11 which is detected by the battery voltage detection circuit 3.

As discussed previously, on one hand, for example, claim 17 sets forth

"detect[ing] a voltage drop of the DC output which is caused by a rush current," while on the other hand, the battery voltage Vb of the lithium ion battery is detected in Nishida. As also discussed previously, further on one hand, for example, claim 17 sets forth "switch[ing] a constant-current control operation from the first constant-current control operation to the second constant-current control operation" wherein the "first constant-current control operation [maintains] a first current value" and the "second constant-current control operation [maintains] a second current value which is larger than the first current value" (emphasis added), while on the other hand, the constant-voltages E1-E3 are changed in Nishida.

As noted, accordingly, for instance, the subjects to be detected and the operations are entirely different between claim 17 and Nishida, the Applicant believing it clear, for example, that the current value of the constant-current control being raised by detecting the voltage drop caused by the rush current is entirely different from the constant-voltage sources being changed by detecting the voltage of the battery.

Trembley merely discusses that the battery charger 404 has a microcontroller 406, that the microcontroller 406 can obtain a temperature of the battery 402a by the temperature sensing line 414b, that the microcontroller 406 performs the charge control on the basis of the temperature and the voltage value of the battery 402a, and that the charge operation is performed only when the temperature of the battery 402a is within a predetermined range.

On one hand, for example, as described above claim 17 sets forth "switch[ing] a constant-current control operation from the second constant-current control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature," while on the

other hand, Trembley merely discusses the charge operation being performed only when the temperature of the battery 402a is within a predetermined range.

Thus, as pointed out previously, Nishida and Trembley, taken individually or in combination, fail, for example, to disclose, teach, or suggest the above-discussed of claim 17. Accordingly, the Applicant respectfully submits that a proper rejection under 35 U.S.C. 103 of independent claim 17 has not been provided.

(Continued on next page)

CONCLUSION

The Office Actions have found no reference or references that individually or in combination disclose, teach, or suggest all aspects of claim 17, and the Applicant believes that claim 17 is allowable. The Applicant therefore respectfully requests that the rejection be reversed.

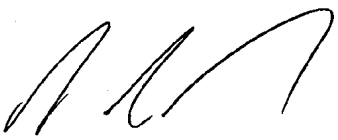
AUTHORIZATION

The Commissioner is hereby authorized to charge any fees which may be required for this Appeal Brief, or credit any overpayment to Deposit Account No. 13-4500, Order No. 1232-5307.

Furthermore, in the event that an extension of time is required, the Commissioner is requested to grant a petition for that extension of time which is required to make this submission timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to the above-noted Deposit Account and Order No.

Respectfully submitted,

MORGAN & FINNEGAN, L.L.P.

By: 

Date: July 14, 2008

Angus R. Gill
Reg. No. 51,133

Mailing Address:
MORGAN & FINNEGAN, L.L.P.
3 World Financial Center
New York, New York 10281-2101
(212) 415-8700
(212) 415-8701 (Fax)

VIII – CLAIMS APPENDIX

17. (Previously Presented) A power supply device having a DC output unit which performs outputting under constant-voltage/constant-current control, comprising:

a constant-current control device which performs a first constant-current control operation for maintaining a first current value and a second constant-current control operation for maintaining a second current value which is larger than the first current value;

a voltage detecting device which detects a voltage drop of the DC output which is caused by a rush current;

a temperature detecting device which detects a temperature of the power supply device; and

a switching device which switches a constant-current control operation from the first constant-current control operation to the second constant-current control operation when said voltage detecting device detects a voltage drop of the DC output while said constant-current control device performs the first constant-current control operation, and switches a constant-current control operation from the second constant-current control operation to the first constant-current control operation when said temperature detecting device detects that a temperature of the power supply device exceeds a predetermined temperature while said constant-current control device performs the second constant-current control operation.

IX – EVIDENCE APPENDIX

None

X – RELATED PROCEEDINGS APPENDIX

None